WHAT IS CLAIMED IS:

1. A method for manufacturing a semiconductor device from a multiple layered wafer structure, wherein said multiple layered wafer structure includes, on a semiconductor substrate, a first dielectric layer, a single crystal semiconductor layer formed on the dielectric layer, a semiconductor nano-crystal layer formed on the single crystal semiconductor layer, and a second dielectric layer formed on the semiconductor nano-crystal layer, wherein laser irradiation is conducted from a side of the second dielectric layer, to thereby separate the second dielectric layer from other layers of the multiple layered wafer structure.

2. A semiconductor manufacturing method as in claim 1, wherein the multiple layered wafer structure is formed by: forming a single crystal or polycrystalline semiconductor layer on a second dielectric layer; changing the single crystal or polycrystalline semiconductor layer to a semiconductor nano-crystal layer by an anode formation method; heat treating a surface of the semiconductor nano-crystal layer in a hydrogen atmosphere; forming a semiconductor single crystal layer on the semiconductor nano-crystal layer; oxidizing a part of the surface of the semiconductor single crystal layer; laminating an oxide film on the surface of the single crystal semiconductor layer to another semiconductor substrate; and conducting a heat treatment after the step of laminating.

3. A semiconductor manufacturing method as in claim 1, wherein the multiple layered wafer structure separated is a silicon on insulator (SOI) structure.

4. A semiconductor manufacturing method as in claim 1, wherein the second dielectric layer is a sapphire, a quartz or another light-transmissive dielectric substrate.

5. A semiconductor manufacturing method as in claim 1, wherein the laser irradiation is conducted with excimer laser.

6. A semiconductor manufacturing method as in claim 2, wherein the step of forming the single crystal semiconductor layer on the semiconductor nano-crystal layer is conducted by one of a metal organic chemical vapor deposition method (MO – CVD method), a molecular beam epitaxial method (MBE method), and an ultra high vacuum chemical vapor deposition method (UHV – CVD method).

7. A semiconductor device that is manufactured by using the semiconductor manufacturing method recited in any one of claims 1 through claim 6.

8. A semiconductor manufacturing method as in claim 1, wherein said semiconductor nano-crystal layer has a greater absporption coefficient in an ultraviolet region than said single crystal semiconductor layer.

9. The semiconductor method of claim 5, wherein said excimer laser is an XeCl laser having a wavelength of approximately 308 nm.

10. The semiconductor method of claim 9, wherein the laser irradiation is conducted with light having an intensity of approximately 400-500 mJ over a surface of said wafer structure.

11. A semiconductor device formed from a multiple layered wafer structure, said multiple layered wafer structure comprising a semiconductor substrate, a first dielectric layer, a single crystal semiconductor layer formed on the dielectric layer, and a second dielectric layer, wherein said semiconductor device is formed on said single crystal semiconductor layer.

12. A semiconductor as claimed in claim 11, wherein said second dielectric layer is formed on a semiconductor nano-crystal layer

13. A semiconductor as claimed in claim 11, wherein laser irradiation is conducted from a side of the second dielectric layer, to thereby separate said second dielectric layer from said multiple layered wafer structure.

14. A semiconductor device formed from a multiple layered wafer structure, said multiple layered wafer structure comprising a semiconductor substrate, a first dielectric layer, a single crystal semiconductor layer formed on the dielectric layer, and a second dielectric layer, wherein said semiconductor device is formed by separating said second dielectric layer from said multiple layered wafer structure.